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By: J. Michael Neary — Date: July 5, 2009

Inventor(s):	Gerald J. Julien	)	
		)	Group A.U. 3618
Serial No.:	10/505,356	)	
		)	Examiner: John Daniel Walters
Filing Date:	August 19, 2004	)	
Title:	Nitinol Ice Blades	)	

Brief on Appeal

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

July 5, 2009

Sir:

1) Real party in interest

Nitinol Technologies, Inc., assignee of this Application, is the real party in interest.

2) Related Appeals and Interferences

Applicants know of no related interferences or appeals that would directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

3) Status of Claims

Claims 1-12 were the original claims in this application. Claim 5 was canceled in a Response following a Restriction Requirement dated Sept. 1, 2006, and claims 13-15 were added in that same Response. In an Amendment under Rule 111 filed on January

17, 2007, new claims 16-20 were added. Claims 6-12 were allowed in the Final Office Action. Claims 1-4 and 13-20 stand finally rejected. .

4) Status of Amendments

No amendments have been filed in this Application since the Final Office Action of Feb. 6, 2009. Immediately after receiving the Final Rejection, Applicant filed a Request for Clarification on Feb. 9, 2009 requesting the Examiner to explain his reasons for giving no weight to a Rule 132 Declaration that was filed on June 30, 2006. Receiving no response to the Request for Clarification, Applicant filed a Petition to the Commissioner on May 6, 2009, concurrently with the Notice of Appeal, to request supervisory action from the Commissioner instructing the Examiner to respond to. To date, Applicant has not received any response to either the Request for Clarification or the Petition to the Commissioner.

5) Summary of Claimed Subject Matter

There are two independent claims on appeal, claims 1 and 13. A concise explanation of the claimed subject matter in each of these claims follows, referring to the specification by page and line number and to the drawings by reference characters and figure numbers.

Claim 1 calls for an ice skate blade 30, 40, 50 (Figs. 1, 5, 9; page 5, lines 16, 21, 26) having an elongated blade body 52 (Fig. 9; page 5, line 25) with a main blade portion and an edge portion 44, 56 (Figs. 5-8, page 5, line 21, 28) made from Type 60 Nitinol. The edge portion of the blade body has an ice-contacting bottom edge. The main blade portion has structure 32, 54 (Figs. 1, 9; page 5, line 18, 26) for engaging a blade holder. The bottom edge has opposed corners that are sharpened to bite into ice to facilitate travel and maneuvering on the ice. The main blade portion has an impact strength of greater than 45 foot-pounds and a hardness greater than about 40 RC.

Claim 13 calls for an ice skate 20 (Fig. 1, page 5, line 16) having an elongated blade body 52 (Fig. 9; page 5, line 25) with a main blade portion and an edge portion 44, 56 (Figs. 5-8, page 5, line 21, 28) made from Type 60 Nitinol. The edge portion of the blade body has an ice-contacting bottom edge. The main blade portion has

structure 32, 54 (Figs. 1, 9; page 18, 26) engaged in a blade holder 26 that is fastened to a boot 23 (Fig. 1, page 5, line 16). The bottom edge has opposed corners that are sharpened to bite into ice to facilitate travel and maneuvering on the ice. The main blade portion has an impact strength of greater than 45 foot-pounds and a hardness greater than about 40 RC.

6) Grounds of Rejection to be Reviewed on Appeal

A) Whether the rejection of claims 1-4 and 13-20 under 35 USC 103(a) as unpatentable over Applicant's disclosure in view of Abkowitz (USPN 6,318,738) and Julien (WO97/29,892) was proper.

7) Argument

Claims 1-4 and 13-20 have been rejected under 35 USC 103 as unpatentable over Applicant's own disclosure in view of Abkowitz et al (P/N 6,318,738) and Julien (WO97/29,892) on the ground that Applicant's disclosure states that certain elements of an ice skate are conventional and well known, and that Abkowitz discloses a titanium alloy skate blade, and Julien WO97/29892 discloses Type 60 Nitinol for a knife blade, and therefore it would have been obvious to make an ice skate blade out of Type 60 Nitinol.

Abkowitz specifies skate blade materials made of a titanium alloy "which is reinforced by a hard constituent" (col 2, lines 5-6). He specifically mentions an alloy of titanium, aluminum and vanadium with hard titanium carbide particles dispersed therein. He also discloses a titanium skate blade clad in "high hardness" oxidized zirconium (col 3, lines 17-18). He states that these reinforcing materials offer high hardness for good edge retention and wear resistance. Abkowitz does not disclose or suggest the use of 60 Nitinol as a skate blade material, even though it was known long prior to the time of his invention.

The Julien PCT publication WO97/29,892 discloses a cutting instrument made of 60 Nitinol. This reference makes a very good case for 60 Nitinol as a cutting instrument, but there is nothing in the disclosure or in the properties of 60 Nitinol as disclosed in this publication that would lead a person of ordinary skill in the art to make skate blades of 60 Nitinol. Applicant asserts that it would not have been obvious to a

person of ordinary skill in the art to use Type 60 Nitinol for an ice skate blade because the physical properties of 60 Nitinol, specifically its low modulus and its low load resistance in conventional three-point bending tests, and also its low hardness, appear to make it a worse candidate for skate blades than conventional steel. High hardness and "strength" are factors that Abkowitz cited as desirable in his skate blade materials but are lacking in 60 Nitinol (at least in some definitions of "strength", such as conventional three-point bending tests used by the industry), so Abkowitz actually teaches away from the use of a material like 60 Nitinol. Moreover, 60 Nitinol is much more expensive than steel and is much harder to cut and sharpen, so making blades out of 60 Nitinol is much more difficult, and sharpening the blades with conventional grinding wheels is almost impossible. These considerations would be enough to convince a person of ordinary skill in the art that 60 Nitinol would be a poor candidate for skate blade material.

In a Declaration under Rule 132 by Susan Buchanan, President of Triumph Sport, Inc., licensee of this Application, Ms Buchanan recounts the experience of Triumph Sport in trying to promote Nitinol skate blades. This Declaration is powerful evidence refuting the Examiner's conclusion that the use of 60 Nitinol would be obvious to a person of ordinary skill in the art for use in skate blades. The Examiner eventually acknowledged receipt of this Declaration but dismissed the evidence it presents of the reaction of actual experts in the art to the possibility of using 60 Nitinol as skate blades, preferring his own opinion that a reference that shows use of titanium would make obvious the use of ANY material having titanium as a constituent, even though the reference specifically specifies the inclusion of hard constituents to give the titanium some hardness and wear resistance.

Even if a person of ordinary skill in the art were determined enough to actually make and test skate blades made of 60 Nitinol, in spite of the evident factors noted above indicating the undesirability of 60 Nitinol as a skate blade material, he would quickly conclude that it would not be suitable for skate blades. Type 60 Nitinol skate blades feel different to skaters than conventional steel blades, as explained in detail in Ms. Buchanan's Rule 132 Declaration. They feel like dull steel blades and skaters feel unstable on the blades, even when standing in a neutral position. Why this is so is not

known for certain. It may be the low modulus of 60 Nitinol, or the low coefficient of friction, or a combination of those and other characteristics. In any case, it takes several hours to get used to the different way skates with 60 Nitinol blades feel on the ice and, without knowing that the performance will be better after becoming accustomed to the way the Nitinol skate blades feel, a person of ordinary skill in the art would reject them as inferior to convention skate blades. In fact, experts in the art have come to the same conclusion and have rejected 60 Nitinol blades provided to them for testing for this combination of reasons.

These notions about how those of ordinary skill in the art would react to the idea of using 60 Nitinol for skate blades are not merely Applicant's opinions. They have, unfortunately, been proven in painful experience during the promotion efforts of Applicant's licensee, Triumph Sport, Inc., as set forth in detail in the aforesaid Declaration under Rule 132 by the President of Triumph Sport, Inc., Susan Buchanan. This Declaration describes the reaction of CCM, also known as Sport Maska, Inc., one of the biggest skate manufacturers in the world, to the offer of 60 Nitinol skate blades for CCM's skates. It should be noted that CCM did not identify 60 Nitinol as a potential skate blade material even though it had existed since the early 1960's; it was brought to their attention by Triumph Sport. CCM did not need to discover how to make skate blades from 60 Nitinol; the sample blades were supplied by Triumph Sport from samples supplied by Applicant. CCM did not have to learn how to sharpen the 60 Nitinol blades; the special grinding wheels and processes were supplied by Triumph Sport. Yet, even after being lead by the hand through all the difficult steps that the Examiner assumes to have been obvious to a person of ordinary skill in the art, CCM (some of the world's foremost experts in skating) concluded that 60 Nitinol skates do not afford any significant benefits, and they declined to consider that matter any further. CCM were not the only experts who declined the offer by Triumph Sport to adopt 60 Nitinol skate blades.

If experts like CCM and others in the industry can conclude that 60 Nitinol is not a suitable material for skate blades, even after having the benefits explained to them in detail and having sample blades provided for testing, Applicant can only conclude that a person of ordinary skill in the art, lacking the extensive experience and accumulated

knowledge of a leader in the skating industry, would not come to any wiser conclusion. There is no better test of what is obvious to a person of ordinary skill in the art than the actual reaction of experts in the art. The test of obviousness is not the perception of extraordinary visionaries like Applicant and Applicant's licensee Susan Buchanan, but what would have been obvious to persons of ordinary skill in the art. Applicant believes that the experts in the skating industry have proven conclusively that the use of 60 Nitinol for skate blades was unobvious, even after being introduced to it in great detail. The mere fact that 60 Nitinol existed along with hundreds of thousands of other potentially usable materials certainly would not have been sufficient to make it obvious to a person of ordinary skill in the art, especially in view of the very substantial apparent disadvantages that would attend its use.

The Examiner's position is that "Abkowitz specifically and directly states that titanium alloys are appropriate materials for use in skate blades." In fact, the teaching in Abkowitz is use of an ice skate blade comprised of a titanium material "***reinforced with a hard constituent***". The Examiner omits mention of that important additional feature in his action, a feature that is in all of the claims in the reference and in every example taught by Abkowitz. The Examiner seems to think that a teaching of the use of a titanium alloy such as an alloy of titanium, aluminum and vanadium "which is reinforced by a hard constituent" titanium carbide particles dispersed therein, or a titanium skate blade clad in "high hardness" oxidized zirconium would make obvious any other material having any titanium, for use as a skate blade, regardless of its properties. In fact, those skilled in the art of designing and making skate blades are primarily interested in the properties of the material, not its chemical composition, as the Rule 132 Declaration of Ms Buchanan makes abundantly clear.

One issue that Ms Buchanan did not mention in her Declaration was the reaction of expert skaters that she was trying to recruit to test the new 60 Nitinol skate blades when they learned that these blades were made of a titanium alloy. (In fact, 60 Nitinol is not an alloy at all; it is an intermetallic compound.) Titanium alloy skate blades have a terrible reputation among expert skaters, and Ms. Buchanan had a big job convincing some of these experts to even try these skate blades because they already "knew" how

bad titanium blades were. In fact, titanium blades are almost nonexistent on the market, notwithstanding the Abkowitz patent.

By the Examiner's reasoning, the use of a material having a constituent used in any other material ever used for that application would, ipso facto, make it obvious to a person of ordinary skill in the art regardless of a host of factors demonstrating unobviousness in fact. Applicant believes that the Examiner's reasoning is not and should not be the law.

Applicant appealed the final rejection and on Feb 11, 2008, the Examiner re-opened prosecution and rejected the same claims that were rejected in his previous final rejection. Applicant responded on May 12, 2008, with an argument for patentability and a restatement that objective evidence of early rejection by experts and later acceptance after overcoming skepticism by actual testing should be accorded greater weight that the Examiner was giving it. Applicant also alluded to a Report that was in preparation showing an improvement in speed that could be achieved with Nitinol skate blades.

On Aug. 1, 2008, Applicant transmitted said Report on the performance of Nitinol ice skate blades prepared by Dr. Alain S. Comtois of the Department of Kinanthropology at the University of Quebec in Montreal, and Francois Whittom and Olivier Desmeules of Whittom and Associates Sports-Performance-Technologies. This report was commissioned by Triumph Sports, licensee of this application.

This Report provides additional objective evidence of patentability of the claims in this application. It proves the superiority of Nitinol skate blades over regular steel blades in terms of speed and maneuverability on the ice. These characteristics were not recognized by experts in the art before Applicant made his invention, and indeed were not recognized by experts in the art even after Applicant's licensee provided test blades to the experts for testing. The experts were so certain of their "knowledge" about the characteristics of a skate blade that they believed that the Nitinol skate blade, which apparently lacked these "essential" characteristics, would be inferior, and evidence to the contrary could not convince them otherwise. This actual evidence of what experts in the art thought about the invention, even after it was explained to them and demonstrated with actual test samples, is overwhelming evidence of the patentability of

the invention. This situation is thoroughly detailed in the Declaration of Susan Bucanan, of record in this application.

There is nothing in the published PCT application of Julien that would make it obvious to use Nitinol for skate blades. One must ask, if experts in the skating art rejected the invention even after having a thorough explanation of their use and the opportunity to test actual Nitinol skate blades, how can the Examiner conclude that a person of only ordinary skill in the art would know, contrary to the opinions of experts, that a Nitinol knife blade would make a good skate blade. The Examiner is saying that the more ignorant worker in the art is better able to make the invention than the expert. Applicant does not believe that this proposition is supported by the case law.

In his final rejection of Feb. 6, 2009, the Examiner brushed off the Buchanan Declaration with the statement that Abkowitz teaches the use of Titanium alloy (again omitting the significant requirement specified by Abkowitz that hard constituents be used in or on the titanium alloy) and he did not acknowledge or address the Report that was submitted on Aug. 1, 2008. That Report presented the startling and unexpected fact that Type 60 Nitinol skate blades were significantly faster on the ice than steel blades. Speed on the ice is a profoundly important property in most skating applications. For example, speed skating competitions are often won by mere seconds or fractions of a second. A speed advantage of 2-5% (which the Report documents) would be an overwhelming benefit to a competitor in a speed skating contest. It is also significant in ice hockey, as the Report explains. This is an extremely important fact relating to patentability, but the Examiner did not acknowledge receipt of the Report and did not provide Applicant with his thoughts about how he considers it to affect his view of patentability. Applicant has no basis for knowing whether the Examiner even read the Report.

Applicant cannot help but conclude that the Examiner is immune to considering real world evidence if it conflicts with his iron-clad and unshakable opinion of unpatentability. Applicant recognizes that Examiners will develop strong opinions, and sometimes the opinions are unfavorable. What Applicant would like from the Examiner is an explanation of his thinking about why the Buchanan Declaration does not deserve greater weight than he has given with a brush-off, and respond to Applicants extensive

arguments about the significance of this evidence. Applicant would also like the Examiner (for the first time) to consider and address the Report. Presumably, the Examiner will need to provide such an explanation in his Examiner's Answer. Applicant believes that the interests of full and complete exploration of the issues would have been served by letting Applicant know the Examiner's reasons for giving the Declaration and the Report no weight **before** Applicant's Appeal Brief was due. That is what the Final Rejection is supposed to do. If the Examiner had done so, Applicant would now be addressing the Examiner's reasons in this Appeal Brief, and the Examiner could have replied in his Examiner's Answer. That is not now possible, and regrettably, the Board will not have a full exposition of the issues by Applicant and the Examiner, but will instead have a truncated version that results from the Examiner withholding his full explanation until his Examiner's Answer.

Independent claims 1 and 13 both call for a Type 60 Nitinol main blade portion having an impact strength of greater than 45 foot-pounds and a hardness greater than about 40 RC. There is no disclosure in Abkowitz about the corresponding physical properties of his powdered metal titanium alloy with embedded particles of TiC or cladding of zirconium oxide . The Examiner has not made any effort to show that the properties of Applicant's skate blade material would have been desirable in a skate blade material to a person of ordinary skill in the art, apparently because he has concluded that this is a property of Applicant's material and that he considers that ANY material containing titanium would have been obvious in view of the Abkowitz reference, even though Abkowitz actually teaches only the use of titanium alloys that have been reinforced with a hard constituent such as inclusions of titanium carbide particles or hard cladding such as zirconium oxide for use in skate blades. Although Abkowitz does not say so expressly, the implication is that unreinforced titanium alloys would not be suitable, and this is confirmed in the marketplace where titanium skate blades are no longer available. The Examiner has not made a convincing case that the use of Type 60 Nitinol in an ice skate blade would have been obvious, and Applicant has submitted extensive evidence of the reaction of experts in the real world about the possibility of using Type 60 Nitinol in ice skate blades. Applicant believes that this evidence is

overwhelming and that the Examiner has offered insufficient basis for refuting this evidence.

The Examiner's argument assumes (without actually stating it) that a person of ordinary skill in the art would conclude from the fact that Abkowitz uses a titanium alloy (specifically titanium 6-4, the most commonly used titanium ally in use today) that ANY material that includes titanium must, ipso facto, be a good skate blade material, or at least a good candidate. Thus, the Examiner's person of ordinary skill in the art would make skate blade test samples of all the grades of titanium alloys, of which the ASTM lists 38, and test them all to see what kind of skating performance they provide. This would take many years and would still miss Nitinol, which is not an alloy (it is an intermetallic compound) and is not listed in the ASTM's 38 grades of titanium alloys anyway. But in fact, this is not how those skilled in the art think, at least not in the skating art. A person of ordinary skill in the art working to develop an improved skate blade would first determine what properties the skate blade material should have. He would look through the lists of materials for a material that provides the optimal combination of those properties. They include mechanical properties, such as the standard three-point bending test, hardness, Young's modulus, etc, etc. They would also include other factors such as ease of machining or stamping, durability of the edge, and ease of sharpening when the blade gets dull or rusty. If this person of ordinary skill in the art read the Abkowitz specification (as we must assume he has) he would learn that titanium 6-4 needs to be made with inclusions of hard material such as titanium carbide, or cladding of a hard coating such as zirconium oxide, since the titanium 6-4 is not hard enough to hold its edge and needs frequent sharpening. Abkowitz' materials compensate for the poor hardness of the titanium alloy with inclusion of hard constituents. Lesson: titanium alloys have poor hardness and need to be modified with hard constituents to give adequate durability. The Abkowitz teaching to a person of ordinary skill in the art would be to find a different material since titanium alloys by themselves are too soft to use without special hardening constituents added, or use a titanium alloy (specifically titanium 6-4) and find better hardening constituents to add.

The properties that a person of ordinary skill in the art would look for in a candidate skate blade material are indicated in the Buchanan Declaration that the

Examiner finds to be unconvincing. They include hardness (also confirmed by Abkowitz) and the three-point bending test (strength and Young's modulus). Type 60 Nitinol is inferior to steel in every one of those tests, which is primarily why it was rejected by the experts in the skating art. But, as indicated in the Buchanan Declaration and the Report, skate blades made of Type 60 Nitinol are superior to steel skate blades in every way, contrary to the expectations of the experts in the industry. Applicant believes that claims 1 and 13 are patentable.

In the following discussion of the claims, Applicant will not repeat his arguments that Abkowitz reference would not teach a person of ordinary skill in the art to use a material such as the material disclosed in the Julien WO97/29,892 publication, since that argument has been made for the parent claims 1 and 13. However, Applicant would ask that that argument be borne in mind while considering the other rejected claims 2-4 and 14-20.

Claims 2 and 14 call for the main blade portion to have a tensile strength of greater than 130KSI and an elastic elongation of more than 3%. These are very unusual properties for metals. There is nothing in Abkowitz that would lead a person of ordinary skill in the art to look for a material that has these properties. Indeed, Abkowitz teaches away from such a material. There is nothing in the references of record to lead a person of ordinary skill in the art to use a knife blade material as taught by Julien WO97/29,892, especially in light of the evidence submitted in the Buchanan Declaration and the Report showing the rejection by experts in the industry of the use of this material for reasons that were considered compelling by the experts applying conventional wisdom fully accepted as true by the industry.

Claims 3 and 15 calls for the blade body to have a hardness between about 48RC and 55RC. Titanium has a low hardness of about 34 RC, which is why Abkowitz uses zirconium oxide cladding on his blade bodies or titanium carbide particle inclusions. A person of ordinary skill in the art following the teachings in Abkowitz would add some sort of hard constituent as a cladding, or hard particles such as titanium carbide to the titanium as taught by Abkowitz. They would not use 60 Nitinol because in its as-cast state it is much too brittle to use as a skate blade material without Applicant's

heat treating process and even after heat treating, it is not as hard as conventional high carbon or stainless steel skate blade materials.

Claim 16 calls for the main blade portion to have a Young's modulus that is lower than the Young's modulus of steel. Why would a skate manufacturer or any other person skilled in the art want a material with a lower Young's modulus than steel? There is no teaching anywhere in Abkowitz about how Young's modulus affects skating, whether it should be high or low or anything about Young's modulus, and he does not disclose the Young's modulus of the material he discloses and claims. Thus, Applicant does not understand how Abkowitz can be a reference against claim 16 when it does not address the subject of claim 16 in any way. The low Young's modulus may be the reason why the Type 60 Nitinol skate blades feel so strange to skaters when they first try them, and why, even if a person of ordinary skill in the art were to make sample blades of Type 60 Nitinol, they would reject them right away. They do not feel right, as noted in the Buchanan Declaration. A skater must continue using them until they get used to the way they feel before they can begin to appreciate how much better they skate.

Claim 17 calls for the main blade portion to have a higher damping capacity than steel. There is no teaching anywhere in Abkowitz about how the damping capacity of the blade material affects skating, whether it should be high or low or anything about the damping capacity of the blade material, and he does not disclose the damping capacity of the blade material he discloses and claims. Thus, Applicant does not understand how Abkowitz can be a reference against claim 16 when it does not address the subject of claim 17 in any way.

Claim 18 calls for the main blade portion to have a lower coefficient of friction on the ice than steel does. Abkowitz does not address this question, although it is likely that he would assert it as a benefit if it were true for his skate blade material and he knew about it. There is no teaching of the coefficient of friction of titanium materials on ice and there is nothing in Abkowitz that would lead a person of ordinary skill in the art to use titanium for skate blades because of its coefficient of friction on ice.

Claim 19 calls for the edge portion of the blade body to be heat treated to have a smooth and hard oxide finish on bottom and side edges thereof that is harder and

smoother than the main blade portion, and has a lower coefficient of friction to produce glide and running properties on ice, superior to steel. The running edge of Abkowitz does in fact have a "hard oxide finish" that is harder than the material of the main blade portion, but it is not "heat treated" to have that oxide finish. The oxide finish on Applicant's blade is created by heating the blade ("heat treating", not by applying a different material. The oxide is created by oxidation of the 60 Nitinol material of the blade itself. There is no teaching of this process in Abkowitz, and there is no basis for believing that heat treating the blade material of Abkowitz would produce any such hard, smooth and slippery oxide.

Claim 20 calls for the blade body to be heat treated to reduce brittleness and improve toughness and impact strength, and give the skate blade an elastic property called ultraelasticity. There is nothing disclosed in Abkowitz that is remotely like this subject matter.

Accordingly, Applicant believes that the claims in this application do define subject matter that is patentable over the prior art and respectfully requests the Board to reverse the Examiner's rejection and to remand this application back to him for issue.

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Respectfully submitted,

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9) Claims Appendix

1. An ice skate blade, comprising:

an elongated blade body having a main blade portion and an edge portion made from Type 60 Nitinol;

said edge portion of said blade body having an ice-contacting bottom edge;

said main blade portion having structure for engaging a blade holder;

said bottom edge having opposed corners that are sharpened to bite into ice to facilitate travel and maneuvering on said ice;

said main blade portion having an impact strength of greater than 45 foot-pounds and a hardness greater than about 40 RC.

2. An ice blade as defined in claim 1, wherein:

said main blade portion has a tensile strength of greater than 130KSI and an elastic elongation of more than 3%.

3. An ice blade as defined in claim 1, wherein:

said blade body has a hardness between about 48RC and 55RC.

4. An ice blade as defined in claim 1, wherein:

said ice blade is an ice skate blade, and said blade holder is affixed to an ice skate boot;

said structure for engaging a blade holder includes structure on a top edge, opposite to said bottom edge, for engaging said blade holder of said ice skate boot.

13. An ice skate, comprising:

an elongated blade body having a main blade portion and an edge portion made from Type 60 Nitinol;

said edge portion of said blade body having an ice-contacting bottom edge;

said main blade portion having structure engaged in a blade holder that is fastened to a boot;

said bottom edge having opposed corners that are sharpened to bite into ice to facilitate travel and maneuvering on said ice;

said main blade portion having an impact strength of greater than 45 foot-pounds and a hardness greater than about 40 RC.

14. An ice skate as defined in claim 13, wherein:

said main blade portion has a tensile strength of greater than 130KSI and an elastic elongation of more than 3%.

15. An ice blade as defined in claim 13, wherein:

said blade body has a hardness between about 48RC and 55RC.

16. An ice skate as defined in claim 13, wherein:

said main blade portion has a Young's modulus that is lower than the Young's modulus of steel.

17. An ice skate as defined in claim 13, wherein:

said main blade portion has a higher damping capacity than steel.

18. An ice skate as defined in claim 13, wherein:

said main blade portion has a lower coefficient of friction on the ice than steel.

19. An ice skate as defined in claim 13, wherein:

said edge portion of said blade body heat treated to have a smooth and hard oxide finish on bottom and side edges thereof that is harder and smoother than said main blade portion, and has a lower coefficient of friction to produce glide and running properties on ice superior to steel.

20. An ice skate as defined in claim 13, wherein:

said blade body is heat treated to reduce brittleness and improve toughness and impact strength, and give the skate blade an elastic property called ultraelasticity.

9. Evidence Appendix

No evidence was submitted under §§1.130, 1.131, or 1.132 of 37 CFR. No evidence (other than the cited prior art) was entered by the examiner and relied upon by Applicants.

10. Related Proceedings Appendix

No decisions were rendered by a court or the Board in any proceedings identified pursuant to 41 CFR 37(c)(1)(ii).